GISette
Email Newsletter

November 2011

Welcome to the forty-sixth edition of the **MassGIS GISette**, a bi-monthly newsletter e-mailed to more than 1,800 members of the geospatial community to keep them informed of data updates, activities at MassGIS, general GIS events, and on-going technology developments. A page on our website has been created for the GISette. There you will find back issues of the GISette and an online subscription form.

While our primary intent in publishing the GISette is to disseminate information related to MassGIS initiatives and data development in particular, we also see the GISette as a means of communicating public agency GIS news. So we encourage readers to send in updates or announcements concerning public agencies that they would like included in the GISette. We particularly want to encourage submission of announcements concerning data development projects. Announcements should be sent to Paul Nutting at paul.nutting@state.ma.us.

Building Massachusetts' Spatial Data Infrastructure (MSDI)

Standardizing Assessor's Parcel Data

The importance of completing the build-out of the Massachusetts Spatial Data Infrastructure (MSDI) was highlighted in the 2007 Strategic Plan for MSDI. In FY11 and again in FY12, MassGIS has received funding to work on the most important component of completing the MSDI: standardized assessor parcel maps. In January 2011, following a competitive procurement, MassGIS contracted with six consultants to standardize assessor parcel mapping in 121 communities in FY11 and additional communities in FY12. So far in FY12, 77 more communities are under contract through these six consultants. In addition, four regional planning agencies (Berkshire, Pioneer Valley, Central Massachusetts, and Merrimack Valley), through the MassGIS regional GIS services contract, will be delivering 17 additional communities of standardized parcel mapping in FY12. The specification for all this work is Level 3 in Version 2 of the MassGIS Digital Parcel Standard.

MassGIS would like to acknowledge the work by our consultants on this project: Tighe and Bond, James W. Sewall Company, Color and Colantonio, Camp Dresser & McKee (CDM), Cartographic Associates, and AppGeo. These six companies have delivered high quality data for their respective portions of this project despite a demanding schedule and the challenges of a new version of the MassGIS digital parcel standard.

MassGIS is currently loading these data to our database and as each

community enters the database, we will post them for distribution on our web site. While every community is listed, only those with a live link are currently available. We will also be working with communities and their parcel mapping provider to ensure that these data are maintained at compliance with Level 3 of the digital parcel standard.

Elevation Data from LiDAR

In our last edition, we wrote about the federally funded project (with some additional areas paid for by the State) to acquire detailed elevation data for much of the eastern Massachusetts using LiDAR. We published a status map showing areas with existing data, as well as the new areas that were captured last fall and this spring. That prompted a flurry of requests for data – unfortunately we still have not received most of the data from the USGS' contractor for this project, but we expect to receive it by the end of the calendar year. We are in the process of cataloguing what we do have and will publish a map in the next few weeks to show our current holdings, as well as links to the metadata for each of these separate projects. For now, here's some more information about the data. The LiDAR files consist of "point clouds" (LAS 1.2 format files) tiled at 1500m x 1500m. Each point represents the measurement of an elevation. Points were collected with very high vertical accuracy equivalent to 2-foot contour accuracy (but without compiled breaklines) using a nominal laser pulse spacing on the ground of 1 or 2 meters. Two versions of processed LAS files will be delivered: 1) calibrated point clouds including first, last, and intermediate returns for each laser pulse, and 2) classified point clouds where a portion of the elevation data points are classified as "bare earth" points and calibrated to the ground surface. In addition to three-dimensional spatial information, the intensity value of each LiDAR return was recorded, and this provides additional texture or color information which is useful in the classification of surfaces such as roads, rooftops, etc. A bare earth surface model (Raster DEM) which is derived from the classified LiDAR points will also be available.

Updated Orthoimagery

MassGIS anticipates that it will soon acquire new 30cm pixel resolution 4-band (R,G,B, & IR) orthoimages. Historically, MassGIS has solicited funding from multiple agencies, conducted a traditional procurement, managed the resulting project, and distributed the orthoimagery. This time, in order to reduce cost, we plan to license the imagery instead of acquiring it outright. The imagery will be from spring and early summer 2011 with some areas that are leafed out in the spring 2011 imagery to be refreshed in spring of 2012. The license is a "premium enterprise" license which will cover all state, regional, local governments, and other political subdivisions as well as all educational institutions, both public and private. MassGIS will be able to provide copies of the imagery to authorized users. The license will cover use by vendors working directly for Commonwealth entities for the duration of the engagement. The imagery will also be available via web services for anyone using MassGIS viewer software such as OLIVER. We expect to have the imagery in the first quarter of 2012.

Statewide Structure Mapping

MassGIS has funding for and is about to initiate a competitive procurement for acquiring statewide mapping of structure rooflines. All structures larger than 150 square feet would be mapped. The rooflines would be compiled on the licensed imagery described above and would be publicly available. This data set would not be as planimetrically accurate as building footprints compiled from stereo imagery. However, as most buildings are not tall enough to "lean" noticeably in orthoimagery, the difference between the roofline and the footprint are typically very small or not noticeable. We currently expect this project would complete by the end of calendar 2012.

Address Points and Master Address Lists

As we now have standardized assessor's parcel mapping available for a number of communities we have launched the next phase of our work in support of next generation of 911. This phase consists of developing a draft master address file (MAF) for each community and then linking each record to a geographic point. These points will be of three types: parcel centroids, building centroids or even points within buildings - depending on the need to more precisely specify a given address e.g. by providing a building name in addition to the numbered address. The MAF will be developed using addresses drawn from multiple sources and then standardized so that addresses from multiple sources can be compared and so that all addresses, regardless of source, can be linked to some geometry. Obviously, we can only go so far in developing these products without local involvement. So as we complete our initial work on mapping the points and building the MAF, we, or our regional GIS service partners, will be contacting emergency data managers, GIS staff and municipal officials involved in addressing for assistance with confirming addresses and address locations.

2010 Census Data

The U.S. Census Bureau has yet to release the very detailed SF1 demographics (hundreds of fields) for the 2010 Census; it is expected soon. What they have released is the Redistricting Data (Public Law 94-171) Summary File which was created for the purposes of redistricting and contains basic population and housing data. Because we have had many requests for processed geography which will link to the yet to be released SF1 file, we have posted for download a series of **DRAFT** file geodatabases that contain the geography: Blocks, Block Groups and Tracts.

Also posted are two identical versions of the PL94 database, the "ACCDB" version is for people who have Access 2007 or later whereas the "MDB" version is for those using Access 2003. Be sure to get the ReadMe file, as that will tell you how the data was processed and how to link the geography and the tables. These data do not line up exactly with MassGIS data (town boundaries, Legislative districts, etc.) but in general Census geography is vastly improved.

Database Updates

- **The Surficial Geology (1:24,000) layer has been updated with new data from the U.S. Geological Survey.**
  Data for Areas E and G are now available. Area E comprises 24 quads and covers Cape Cod, the Elizabeth Islands, Martha's Vineyard and Nantucket. The 24-quad Area G includes the majority of Franklin, Hampshire and Hampden counties. Additionally, the USGS quad images used as a base for data interpretation for these areas are now part of the file geodatabase MassGIS maintains and distributes.

  These data layers are part of a comprehensive study by the U.S. Geological Survey to produce a statewide digital map of the surficial geology at a 1:24,000-scale. This compilation of surficial geologic materials defines the areas of exposed bedrock, and the boundaries between glacial till, glacial stratified deposits, and overlying early-postglacial and postglacial deposits.

  Please see http://www.mass.gov/mgis/sg24k.htm for details and a link to free data download.

- **DRAFT 2010 U.S. Census Data - 6/15/2011**
  As described above. MassGIS is also releasing a DRAFT version of the Census 2010 TIGER roads. This statewide dataset may be used in geocoding applications.

- **The Office of Fishing and Boating Access Sites Layer has been updated** - 5/12/2011
  GIS staff at the Massachusetts Department of Fish & Game (DFG) edited the layer, which increased the point total from 243 to 257.
  See http://www.mass.gov/mgis/ofba.htm for metadata and a link to free data download.

- **The MassDEP Wetlands Conservancy Program has finished the latest round of wetland change detection based on the 2008 and 2009 orthophotos** - 5/18/2011
  This finalizes The Department's 2008/2009 wetland change detection efforts statewide.
  Also, a new attribute field (DETECTYEAR) has been added to the layer which describes the year of orthophoto on which the change area is first detectable.
  For details and a link to free data download please see http://www.mass.gov/mgis/wetchange.htm.

- **The Mass. Division of Marine Fisheries has updated the Shellfish Suitability Areas data layer** - 5/20/2011
  Updates include the addition of newly identified habitat areas and modifications to the BEGIN_DATE and END_DATE fields to reflect important new life history stage information for select shellfish species. The new information in these fields is now consistent for shellfish species with information included in a new DMF technical report soon to be

released by Marine Fisheries (TR-47: Marine Fisheries Time of Year Restrictions (TOYs) for Coastal Alteration Projects).
Please see http://www.mass.gov/mgis/shlfshsuit.htm for details and a link to free data download.

- **The Community Boundaries (Towns) from Survey Points layers have been updated**
  6/8/2011
  In accordance with the original survey atlas depiction, the Boston/Brookline boundary was modified (topological edit based on ARC feature class line moved from point ID1 1071 to 798), affecting the two polygon and one arc layers.

  10/26/2011
  Edits were made along the boundaries of: Palmer-Monson (based on parcels); West Springfield-Agawam (Acts and Resolves redefinition); Charlemont-Hawley, Douglas-Uxbridge, and Grafton-Westborough (legislative changes). All four feature classes (lines, polygons, multi-part polygons and points) were updated.

  Please see http://www.mass.gov/mgis/townssurvey.htm for metadata and links to free data download.

- **State House and Senate Districts Layers Updated** - 6/22/2011
  Attribute changes were made to the polygon layers based on the November 2010 election and spring special elections.

- **EEA has updated the Protected and Recreational OpenSpace layers (arcs and polygons).**
  Since the last web publication in July 2011, the protected open space editors continued to make many enhancements to the database. A new shapefile and personal geodatabase have been placed on our ftp site, representing data updated as of 10/7/11.
  See http://www.mass.gov/mgis/osp.htm for metadata and links to the free data download.

- **The MassDEP Wetlands Conservancy Program has updated the wetland change detection layer.**
  One change feature (WC3A-292-5) in Swansea was added.
  This is in addition to the update in May, when the MassDEP Wetlands Conservancy Program finished the latest round of wetland change detection based on the 2008 and 2009 orthophotos.
  For details and a link to free data download please see http://www.mass.gov/mgis/wetchange.htm.

- **The Natural Heritage & Endangered Species Program (NHESP) has updated the Certified Vernal Pools layer.**
  The update is effective beginning February 28, 2011.
  Please see http://www.mass.gov/mgis/cvp.htm for details and a link to the free data download.

- **The Mass. Department of Conservation and Recreation has updated the DCR Pools layer.**

Attribute updates include the Connors Pool opening summer 2012; the Johnson Pool's STATUS to closed; no lifeguard at Beaver Brook Spray Deck; and no comments for the Dilboy Pool.
See http://www.mass.gov/mgis/pools.htm for metadata and a link to free data download.

- **The Ice Rinks layer has been updated to include the following:**
  Attribute updates include changing FACIL_TYPE for the following rinks from DCR to DCRP: RINK_ID 245 - Anthony A. LoConte Memorial Skating Rink is now managed by Medford; RINK_ID 250 - Max Ulin Memorial Skating Rink is now managed by Milton; RINK_ID 267 - Mayor William T. Shea Memorial Rink is now managed by Michael B. O'Toole, Jr. LLC.; RINK_ID 281 - Veterans Memorial Skating Rink is now managed by Somerville. Also, the Name and Label for RINK_ID 176 (Veterans Memorial Skating Rink) are now both Ed Burns Arena.
  In addition, RINK_ID 336 (Cass Rink) was deleted, as it is no longer an ice rink, but a multi-use recreation center without ice or ice making equipment.
  See http://www.mass.gov/mgis/icerinks.htm for metadata and a link to free data download.

- **The MassDEP GIS Group has updated these datalayers:**
  - Tier Classified Chapter 21E Sites
  - MassDEP Oil and/or Hazardous Material Sites with Activity and Use Limitations (AUL)
  These updates are current as of July 31, 2011.
  For full metadata and links to download the free data please see http://www.mass.gov/mgis/c21e.htm and http://www.mass.gov/mgis/aul.htm.

- **MassDEP has updated the Ground Water Discharge Permits point layer, current as of 4/21/2011.**
  For metadata and a link to free data download please visit http://www.mass.gov/mgis/gwp.htm.
  With this update, all current, active permits have been located so the Unlocated Sites List table (GWP_PT_USL) is empty and not distributed.

Online Mapping

You haven't heard from the online mapping side of MassGIS for a while because we've been very busy! As part of moving from the Executive Office of Energy and Environmental Affairs to the Information Technology Division, MassGIS has been recreating all of its online mapping functionality on new servers (in all 17 servers have been built to support internal and external MassGIS functions).

The new equipment is in the Massachusetts Information Technology Center (MITC) in Chelsea, providing a secure data center with backup, fire and flood control - the works. The new database has more storage capacity, the servers have faster processors, and the software installed reflects upgraded versions. System maintenance isdivided amongst dedicated teams for various components (OS, Oracle, hardware, backup),

providing more expert support. A new component, a gateway, will front most of the servers providing additional processing functionality.

The configuration has taken many months, and on June 30th, GeoServer, ArcIMS, geocoding, web mapping, online application functions and FTP functions were transferred from Causeway St. in Boston to MITC. For most users, the transition has been transparent, as the current servers names (maps.massgis.state.ma.us and giswebservices.massgis.state.ma.us,) will continue to be used. A transition of this magnitude, however, is bound to come with a few hiccups so we also ask for patience as we work through any issues that arise.

During this initial period MassGIS is especially interested in getting feedback on online mapping and services. Please let us know of your experience, good or bad! Additional upgrades to OLIVER and GeoServer are also in the works. MassGIS and CZM are working on a series of bug fixes and enhancements to OLIVER and MORIS, due to be released in early January.

Some of the improvements include:

- Better print functionality
- More base maps
- The ability to change colors
- The return of extract by choosing a feature or drawing a polygon
- The ability to identify on rasters
- The ability to choose which tools are visible
- Editing capability for points/lines/polys including snapping and splitting
- Updated and expanded documentation

For those who are interested, the project lives at the Google code repository and Issues are tracked there.

ArcIMS Online Viewers

MassGIS is anxious to retire ESRI's ArcIMS online mapping product in favor of the more up-to-date ESRI ArcGIS Server and GeoServer online mapping engines which we also provide.

The primary reason for this is that ESRI no longer supports ArcIMS. On its web site under "ArcIMS Product Life Cycle Support Status" the company says:

"ArcGIS 10.0 is the last release of ArcIMS; we will no longer ship ArcIMS in releases after ArcGIS 10.0. With the adoption of ArcGIS Server and the move to 64-bit servers, ArcIMS is no longer the recommended product for producing web maps. Users should develop a plan and migrate to the ArcGIS". Another reason is that it is cumbersome for MassGIS to maintain 3 mapping engines.

As part of this process MassGIS would like to work with agencies that

have ArcIMS applications, including what we call "HTML Viewers" that rely on ArcIMS map services, to convert them to online mapping applications that use other map engines. For the “Viewers” one option is to create a "version" of OLIVER to replace the HTML viewer online map. OLIVER can be opened with default datalayers and a specific geographic area. Even the data in the folders and the title can be customized to present specific mapping application functionality. MassGIS is also planning to create a new geocoding service using ArcGIS Server; the ArcIMS geocoding service will remain available until ArcGIS Server geocoding has been fully adopted.

Staff Announcements

This summer, our long-time Systems Administrator, **Bill Mahoney**, departed for the Department of Elementary and Secondary Education. He was instrumental in completing our transition from EEA to ITD. Bill’s contributions over six years were many. His expertise will be missed and his good work well remembered.

Any comments or suggestions about the GISette are welcome – send to paul.nutting@state.ma.us.

MassGIS - The Commonwealth’s Office of Geographic Information is located within the Information Technology Division at the Executive Office of Administration and Finance and is charged with the collection, enhancement, storage and dissemination of the Commonwealth’s geographic data and information.

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